

EPSON OPOS ADK MANUAL

APPLICATION DEVELOPMENT GUIDE

POSPrinter (TM-H5000II/TM-U590)

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Contents

SECTION 1. INTRODUCTION	1
SECTION 2. DETAILS ON SETTINGS	2
2.1 References of Firmware Versions	2
2.2 Settings of DIP Switches	2
2.3 Port Information.....	5
2.4 Device Settings	7
2.4.1 Usable Device Specific Settings.....	7
SECTION 3. FUNCTION DETAILS.....	8
3.1 Property Set Values and Default Values.....	8
3.1.1 Capability Set Values.....	8
3.1.2 List Properties	10
3.1.3 Width and Height Properties.....	10
3.1.4 Common Property Strings	11
3.1.5 PageMode Print Properties.....	12
3.2 Methods.....	13
3.3 Escape Sequences.....	14
3.4 Printable Barcode Type	15
3.5 Power Condition Reports	15
3.6 Synchronous Processing	15
3.7 Printing Positions.....	16
3.8 Electronic Logo Function (NVRAM)	16
3.9 Printable bitmap types and sizes	17
3.10 Color Bitmap Printing	17
3.11 Maintenance Counter	17
3.12 Automatic Recovery Function	18
3.13 Output without Flow Control on the USB/Ethernet Interfaces	18
3.14 LED Blinking when BeginInsertion is executed.....	18
SECTION 4. WARNINGS	19

Section 1. Introduction

This manual describes the method of use and related items, as well as machine-specific precautions, when the EPSON TM-H5000II/TM-U590 Series POS Printers are used with the EPSON OPOS ADK program.

This manual applies to the following devices.

Device List

Serial	Parallel	USB	Ethernet
TM-H5000II	TM-H5000IIP	TM-H5000IIU	TM-H5000IIE
TM-H5000IIM	TM-H5000IIPM	TM-H5000IIMU	TM-H5000IIME
TM-U590	TM-U590P	TM-U590U	TM-U590E
TM-U590M	TM-U590PM	TM-U590MU	TM-U590ME

Before reading the manual, see the following explanation about the characteristic of the TM-H5000II/TM-U590 models.

- TM-H5000II
 - Station: Receipt (Line Thermal 180 dpi X 180 dpi)
Slip (9-pin Serial impact dot matrix)
- TM-U590
 - Station: Slip (9-pin Serial impact dot matrix)

Throughout the manual, the various model names will be referred to as TM-H5000II/TM-U590.

Compatibility mode

The compatibility mode for upward compatibility was added in OPOS Ver2.60.

For the details of the compatibility mode, please refer to “EPSON OPOS ADK MANUAL APPLICATION DEVELOPMENT GUIDE Compatibility Mode”.

Section 2. Details on Settings

This section describes connection configurations and how to make the settings for the TM-H5000II/TM-U590 Series printers.

2.1 References of Firmware Versions

Refer to the release notes (Relnote.txt).

2.2 Settings of DIP Switches

Confirm that the following settings have been made correctly.

1) Serial port

DIP-SW1

No.	Setting	
1	OFF	Recommended
2	OFF	Recommended
3	OFF	Fixed at OFF
4	OFF	Fixed at OFF
5	OFF	Settable
6	OFF	Settable
7	ON	Settable
8	OFF	Settable

DIP-SW2

No.	Setting	
1	OFF	Settable
2	OFF	Settable
3	OFF	Settable
4	OFF	Settable
5	OFF	Fixed at OFF
6	OFF	Fixed at OFF
7	OFF	Fixed at OFF
8	OFF	Fixed at OFF

It is possible to change the settings of DIP-SW1-1 (Processing of the data input error) and DIP-SW1-2 (Specification of the received buffer capacity), but it is recommended to leave them OFF.

Set DIP-SW1-3 (Handshake) to DTR/DSR.

Set DIP-SW1-4 (Bit length) to 8 bits.

Set DIP-SW1-5 to DIP-SW1-8 in accordance with the port information.

The described set values are the default values. For the details, refer to the product manual of the POSPrinter. Also, if these settings are changed, make sure to change the port information using the SetupPOS utility.

Set DIP-SW2-2 in accordance with whether or not a customer display is connected. If connected, set to ON. If not, set to OFF.

Set DIP-SW2-3 and DIP-SW2-4 (Specification of the print density) to match the environment of use.

Make other settings in accordance with the settings described above.

- For the TM-U590
DIP-SW2-3 and DIP-SW2-4 are not used. Fix them OFF.

2) Parallel Port

DIP-SW 1

No.	Setting	
1	OFF	Recommended
2	OFF	Recommended
3	OFF	Fixed at OFF
4	OFF	Fixed at OFF
5	OFF	Fixed at OFF
6	OFF	Fixed at OFF
7	OFF	Fixed at OFF
8	OFF	Fixed at OFF

DIP-SW 2

No.	Setting	
1	OFF	Settable
2	OFF	Fixed at OFF
3	OFF	Settable
4	OFF	Settable
5	OFF	Fixed at OFF
6	OFF	Fixed at OFF
7	OFF	Fixed at OFF
8	ON	Fixed at ON

It is possible to change the settings of DIP-SW1-1 (Auto line feed) and DIP-SW1-2 (Specification of the received buffer capacity), but it is recommended to leave them OFF.

Set DIP-SW2-3 and DIP-SW2-4 (Specification of the print density) to match the environment of use.

Make other settings in accordance with the settings described above.

- For the TM-U590
DIP-SW2-3 and DIP-SW2-4 are not used. Fix them OFF.

3) USB Port

DIP-SW1

No.	Setting	
1	OFF	Recommended
2	OFF	Recommended
3	OFF	Fixed at OFF
4	OFF	Fixed at OFF
5	OFF	Fixed at OFF
6	OFF	Fixed at OFF
7	OFF	Fixed at OFF
8	OFF	Fixed at OFF

DIP-SW2

No.	Setting	
1	OFF	Recommended
2	OFF	Fixed at OFF
3	OFF	Settable
4	OFF	Settable
5	OFF	Fixed at OFF
6	OFF	Fixed at OFF
7	OFF	Fixed at OFF
8	ON	Fixed at ON

It is possible to change the settings of DIP-SW1-1 (Auto line feed) and DIP-SW1-2 (Specification of the received buffer capacity), but it is recommended to leave them OFF.

Set DIP-SW2-3 and DIP-SW2-4 (Specification of the print density) to match the environment of use.

Make other settings in accordance with the settings described above.

- For the TM-U590
DIP-SW2-3 and DIP-SW2-4 are not used. Fix them OFF.

4) Ethernet Port

DIP-SW1

No.	Setting	
1	OFF	Recommended
2	OFF	Recommended
3	OFF	Fixed at OFF
4	OFF	Fixed at OFF
5	OFF	Fixed at OFF
6	OFF	Fixed at OFF
7	OFF	Fixed at OFF
8	OFF	Fixed at OFF

DIP-SW2

No.	Setting	
1	OFF	Recommended
2	OFF	Fixed at OFF
3	OFF	Settable
4	OFF	Settable
5	OFF	Fixed at OFF
6	OFF	Fixed at OFF
7	OFF	Fixed at OFF
8	ON	Fixed at ON

It is possible to change the settings of DIP-SW1-1 (Auto line feed) and DIP-SW1-2 (Specification of the received buffer capacity), but it is recommended to leave them OFF.

Set DIP-SW2-3 and DIP-SW2-4 (Specification of the print density) to match the environment of use.

Make other settings in accordance with the settings described above.

- For the TM-U590

2.3 Port Information

1) Port information when serial port is used

The port information that can be set with the SetupPOS utility is as follows.

Item	Setting range
Baud rate [bps]	2400, 4800, 9600, 19200, 38400
Bit length [bit]	8
Parity	NONE, ODD, EVEN
Stop bit [bit]	1
Handshake	DTR/DSR
Output buffer length [byte]	32 to 1024
Output interval time [ms]	0 to 9999

The default settings are as shown in the following table.

Item	Setting range
Baud rate [bps]	9600
Bit length [bit]	8
Parity	NONE
Stop bit [bit]	1
Handshake	DTR/DSR
Output buffer length [byte]	1024
Output interval time [ms]	2500

2) Port information when using parallel port

The port information that can be set with the SetupPOS utility is as follows.

Item	Setting range
Output buffer length [byte]	32 to 1024
Output interval time [ms]	0 to 9999

The default settings are as shown in the following table.

Item	Setting range
Output buffer length [byte]	1024
Output interval time [ms]	2500

3) Port information when using USB port

The port information that can be set with the SetupPOS utility is as follows.

Item	Setting range
Output interval time [ms]	0 to 9999

The default setting is as shown in the following table.

Item	Setting range
Output interval time [ms]	2500

4) Port information when using Ethernet port

The port information that can be set with the SetupPOS utility is as follows.

Item	Setting range
Output buffer length [byte]	32 to 1024
Output interval time [ms]	0 to 9999

The default settings are as shown in the following table.

Item	Setting range
Output buffer length [byte]	1024
Output interval time [ms]	2500

2.4 Device Settings

The following explanation is about the settings for TM-H5000II/TM-U590.

2.4.1 Usable Device Specific Settings

For the TM-H5000II/TM-U590, the following device specific settings are settable by the SetupPOS utility. For the detail, please refer to the corresponding part of the Section 2 of “EPSON OPOS ADK MANUAL APPLICATION DEVELOPMENT GUIDE POSPrinter (TM Series)”

Tab	Settings
General	Disable panel buttons
	Assume print complete when data output finishes
	Ignore firmware version check
	Homogenize Error Codes ^{*1}
	Output complete timeout
Slip	Removal feed length [line]
	Reverse feed removal
	Blink LED with BeginInsertion
Bitmap	TMFlogo... ^{*2}
Color Bitmap	Method
	Brightness
	Primary
Status Log	ERROR
	OFFLINE
	Log file name (full path name)
	Maximum file size [KB]
Default Value ^{*3}	Multilingual font

^{*1} The operations differ by the firmware versions. See the corresponding part of the section 2 of this manual.

^{*2} Settable only for the TM-H5000II.

^{*3} Available only for the Multilingual character model.

Section 3. Function Details

This section describes the functions of the TM-H5000II/TM-U590 printers in details. Supplementary explanation of the parts not described in detail in the "UPOS" is also given here.

3.1 Property Set Values and Default Values

The following explanation is about the property set values and the default values.

3.1.1 Capability Set Values

The following values are the Capability set values.

Capability Name	TM-H5000II	TM-U590
CapTransaction	TRUE	TRUE
CapCoverSensor	TRUE	TRUE
CapConcurrentRecSlp	FALSE	FALSE
CapConcurrentJrnSlp	FALSE	FALSE
CapConcurrentJrnRec	FALSE	FALSE
CapConcurrentPageMode	FALSE	FALSE
CapCharacterSet *1	PTR_CCS_ASCII	PTR_CCS_ASCII
CapMapCharacterSet	FALSE	FALSE
CapJrnUnderline	FALSE	FALSE
CapJrnNearEndSensor	FALSE	FALSE
CapJrnItalic	FALSE	FALSE
CapJrnEmptySensor	FALSE	FALSE
CapJrnDwideDhigh	FALSE	FALSE
CapJrnDwide	FALSE	FALSE
CapJrnDhigh	FALSE	FALSE
CapJrnColor	0	0
CapJrnCartridgeSensor	0	0
CapJrnBold	FALSE	FALSE
CapJrn2Color	FALSE	FALSE
CapJrnPresent	FALSE	FALSE
CapRecPageMode	TRUE	FALSE
CapRecUnderline	TRUE	TRUE
CapRecStamp	FALSE	FALSE
CapRecRotate180	TRUE	FALSE
CapRecRight90	TRUE	FALSE
CapRecPapercut	TRUE	FALSE
CapRecNearEndSensor	TRUE	TRUE
CapRecMarkFeed	0	0
CapRecLeft90	TRUE	FALSE
CapRecItalic	FALSE	FALSE

CapRecEmptySensor	TRUE	FALSE
CapRecDwideDhigh	TRUE	FALSE
CapRecDwide	TRUE	FALSE
CapRecDhigh	TRUE	FALSE
CapRecColor	PTR_COLOR_PRIMARY	0
CapRecCartridgeSensor	0	0
CapRecBold	TRUE	FALSE
CapRecBitmap	TRUE	FALSE
CapRecBarCode	TRUE	FALSE
CapRec2Color	FALSE	FALSE
CapRecPresent	TRUE	FALSE
CapSlpUnderline	TRUE	TRUE
CapSlpRotate180	TRUE	TRUE
CapSlpRight90	TRUE * ²	TRUE * ²
CapSlpNearEndSensor	TRUE	TRUE
CapSlpLeft90	TRUE * ²	TRUE * ²
CapSlpItalic	FALSE	FALSE
CapSlpEmptySensor	TRUE	TRUE
CapSlpDwideDhigh	TRUE	TRUE
CapSlpDwide	TRUE	TRUE
CapSlpDhigh	TRUE	TRUE
CapSlpColor	PTR_COLOR_PRIMARY	PTR_COLOR_PRIMARY
CapSlpCartridgeSensor	0	0
CapSlpBothSidesPrint	FALSE	FALSE
CapSlpBold	TRUE	TRUE
CapSlpBitmap	TRUE	TRUE
CapSlpBarCode	TRUE * ²	TRUE * ²
CapSlp2Color	FALSE	FALSE
CapSlpFullslip	TRUE	TRUE
CapSlpPresent	TRUE	TRUE
CapSlpPageMode	TRUE * ³	TRUE * ³

*¹ If Multilingual character model, "PTR_CCS_KANJI" is set.

*² The operations differ by the firmware versions. See the corresponding part of the section 2 of this manual.

*³ If Multilingual character model, "FALSE" is set.

3.1.2 List Properties

The List Properties are explained in the following.

List Property	Settings
CharacterSetList	"255,437,850,858,860,863,865,998" *1
JrnLineCharsList	"
RecLineCharsList (When 79.5 mm is set)	(TM-H5000II) : "42,56" (TM-U590) : ""
SlpLineCharsList	"66,88"
RecBarCodeRotationList	(TM-H5000II) : "0,R90, L90, 180" (TM-U590) : ""
RecBitmapRotationList	(TM-H5000II) : "0,R90, L90, 180" (TM-U590) : ""
SlpBarCodeRotationList	(ANK) "0,180" *2 (Multilingual character) ""
SlpBitmapRotationList	(ANK) "0,R90, L90, 180" (Multilingual character) "0, 180"
FontTypefaceList	"

*1 If Multilingual character model, "936" or "950" is added to the list.

*2 The operations differ by the firmware versions. See the corresponding part of the section 2 of this manual.

3.1.3 Width and Height Properties

The width and height properties are described below.

Property	Settings		
	Default Value	Maximum value [dot]	Minimum value [dot]
RecLineSpacing	30	127	24 *2
JrnLineSpacing	X	X	X
SlpLineSpacing	12	127	0
SlpLineHeight [dot]	9		
RecLineHeight [dot] *1	24,17		
JrnLineHeight [dot]	X		
SlpLineWidth [dot]	400		
RecLineWidth [dot]	512		
JrnLineWidth [dot]	X		
RecSidewaysMaxLines *1	17 *4		
RecSidewaysMaxChars *1 (When Font A is selected)	69 *5		
RecSidewaysMaxChars *1 (When Font B is selected)	92 *5		
RecLinesToPaperCut *1	5 *3		
SlpSidewaysMaxLines	33 *4		
SlpSidewaysMaxChars	150 *5		
SlpMaxLines	0		

X: No settings

*1 Available only for the TM-H5000II. On the other models, there is no setting.

*2 In the case of a line thermal station, the Line Spacing setting is identical with the height of the characters which means that it can be set at up to 17 when Font B is selected.

*³ It can be changed by the settings of the RecLineSpacing or the character height.

*⁴ It can be changed by the settings of the XxxLineSpacing or the XxxLineHeight.

*⁵ It can be changed by the settings of the font width. (TM-H5000II)

When the RecLineSpacing is 0, the RecLinesToPaperCut is -1.

When the SlpLineSpacing is 0, the SlpSidewaysMaxLines is -1.

3.1.4 Common Property Strings

The Device information properties are described below.

● TM-H5000II

I/F	DeviceName	DeviceDescription
S	TM-H5000II	EPSON TM-H5000II POS Printer
	TM-H5000IIM	EPSON TM-H5000IIM POS Printer
P	TM-H5000IIP	EPSON TM-H5000IIP POS Printer
	TM-H5000IIPM	EPSON TM-H5000IIPM POS Printer
U	TM-H5000IIU	EPSON TM-H5000IIU POS Printer
	TM-H5000IIMU	EPSON TM-H5000IIMU POS Printer
E	TM-H5000IIE	EPSON TM-H5000IIE POS Printer
	TM-H5000IIME	EPSON TM-H5000IIME POS Printer

● TM-U590

I/F	DeviceName	DeviceDescription
S	TM-U590	EPSON TM-U590 POS Printer
	TM-U590M	EPSON TM-U590M POS Printer
P	TM-U590P	EPSON TM-U590P POS Printer
	TM-U590PM	EPSON TM-U590PM POS Printer
U	TM-U590U	EPSON TM-U590U POS Printer
	TM-U590MU	EPSON TM-U590MU POS Printer
E	TM-U590E	EPSON TM-U590E POS Printer
	TM-U590ME	EPSON TM-U590ME POS Printer

I/F indicate the connected interface.

The following is the list of the four connecting interfaces.

S: Serial

P: Parallel

U: USB

E: Ethernet

3.1.5 PageMode Print Properties

The Device information properties are described below.

- TM-H5000II

Property	Station ^{*2}		
	Journal	Receipt	Slip
PageModeArea	-	"512", "831"	"400", "902"
PageModeDescriptor ^{*1}	-	BM/BC/BMR/BCR	BM/BMR

- TM-H5000IIM

Property	Station ^{*2}		
	Journal	Receipt	Slip
PageModeArea	-	"512", "831"	" "
PageModeDescriptor ^{*1}	-	BM/BC/BMR/BCR	0

- TM-U590

Property	Station ^{*2}		
	Journal	Receipt	Slip
PageModeArea	-	" ", " "	"400", "902"
PageModeDescriptor ^{*1}	-	0	BM/BMR

^{*1} Following setting values are used for the PageModeDescriptor property.

- BM : Bitmap printing is available.
- BC : Barcode printing is available.
- BMR : Rotated printing of bitmap is available.
- BCR : Rotated printing of barcode is available.

^{*2} If the Station's CapRecPageMode and/or CapSlpPageMode property values are FALSE, the PageModeArea property shall have " " and the PageModeDescriptor property shall have "0" respectively as a setting value.

3.2 Methods

The following explanation is about supported/unsupported Methods, and the detailed information.

Method	Supported/Unsupported	Compatibility with the PageMode printing
PrintNormal	O	O
PrintTwoNormal	X	X
PrintImmediate	O	O ^{*2}
PrintBarCode	O	O ^{*3}
PrintBitmap	O	O ^{*4}
PrintMemoryBitmap	O	O ^{*4}
CutPaper ^{*1}	O (1~100: Cutting with one point of the bottom left corner uncut)	X
MarkFeed	X	X
ChangePrintSide	X	X
ValidateData	O	O
TransactionPrint	O	O
SetLogo	O	O
SetBitmap	O	O
RotatePrint	O	X
EndRemoval	O	O
BeginRemoval ^{*5}	O	O
EndInsertion	O	O
BeginInsertion	O	O
ClearPrintArea	O	O
PageModePrint	O	O

O:Supported

X:Unsupported

^{*1} Available only for the TM-H5000II. On the other models, there is no setting.

^{*2} If the specified Station is ready to print, the printing data shall not be stored in the PageMode printing buffer but, instead, go straight to printing. If the Station is not ready to print, an error is returned.

^{*3} If other than "LEFT" is specified for the printing position of barcode, the printing shall be done, regardless of the PageModeHorizontalPosition property setting, based on the PageModePrintArea property setting in the horizontal direction.

^{*4} If other than "LEFT" is specified for the printing position of bitmap, the printing shall be done, regardless of the PageModeHorizontalPosition property setting, based on the PageModePrintArea property setting in the horizontal direction.

^{*5} In the case of devices that only have a slip station, if BeginRemoval method is executed when a paper is not placed in the slip station, OPOS_SUCCESS is returned.

3.3 Escape Sequences

The following figure is about supported/unsupported Escape Sequences.

Escape Sequence	Receipt (TM-H5000II)	Slip (TM-H5000II) (TM-U590)	Compatibility with the PageMode printing
#P	0~100	X	X
#fP	0~100	X	X
#sP	X	X	X
sL	X	X	X
#B	O	O	O
tL	O	O	O
bL	O	O	O
#R	O	O	O
#IF	0~9999	0~9999	O
#uF Base Pitch [inch]	0~ equiv. 50 cm	0~ equiv. 50 cm	O
#rF Maximum [inch]	X	327	X
#E	0~65535	0~65535	X
#fT	X	X	X
[!]bC	O	O	O
#uC	1~2	1	O
[!]iC	X	X	X
#rC	1	1	O
[!]rvC	O	X	O (Receipt) X (Slip)
#sC	X	X	X
#fC	X	X	X
[!]tbC	X	X	X
[!]tpC	X	X	X
1C	O	O	O
2C	O	O	O
3C	O	O	O
4C	O	O	O
#hC	1~8	1~2	O
#vC	1~8	1~2	O
cA	O	O	O ^{*1}
rA	O	O	O ^{*1}
lA	O	O	O
N	O	O	O

O :Supported

X :Unsupported

Numbers: Settable range

^{*1} Regardless of the PageModeHorizontalPosition property setting, center or right adjust what is to be printed based on the PageModePrintArea property setting in the horizontal direction.

3.4 Printable Barcode Type

The TM-H5000II/TM-U590 allow the following barcode types.

- Code 128
- Code 128 Parsed
- Code 93
- Codabar
- ITF
- Code 39
- JAN 13 (EAN 13)
- JAN 8 (EAN 8)
- UPC-E
- UPC-A

3.5 Power Condition Reports

The TM-H5000II/TM-U590 support Power Condition Reports as follows.

Powered on reporting: Supported

Powered off reporting: Unsupported

3.6 Synchronous Processing

The TM-H5000II/TM-U590 use Process ID to determine output completion.

Use of the Process ID allows multiple print commands to be queued to the printer simultaneously. For this reason, Asynchronous output (AsyncMode = TRUE) gives a performance improvement.

3.7 Printing Positions

The TM-H5000II/TM-U590 support the function for setting printing position.

Function	Receipt	Slip
Left margin	O	O
Printing Position	O	O

O: Supported

X: Unsupported

When the left margin setting function is supported, it is possible to specify the horizontal printing position of the bitmap or barcode by dots unit.

When the printing position settings are supported, it is possible to specify the horizontal printing position of the text, bitmap, or the barcode to the left, center, or the right side of the paper.

3.8 Electronic Logo Function (NVRAM)

The TM-H5000II models feature an electronic logo function (NVRAM). To use NVRAM, start up TMFlogo utility from “Device Specific Settings” of SetupPOS utility, and register image files (BMP style) with NVRAM in advance.

For the details of the registration, please refer to the “Help” of “TMFlogo utility” and/or “EPSON OPOS ADK MANUAL User’s Manual TMFlogo Utility”.

To print image files registered with NVRAM, please use the either of the following

DirectIO:

PTR_DI_FLASH_BITMAP

PTR_DI_FLASH_BITMAP2.

Please refer to the corresponding part of the Section 4 of “EPSON OPOS ADK MANUAL APPLICATION DEVELOPMENT GUIDE POSPrinter (TM Series)” for detail. The available NVRAM sizes are as follows:

TM-H5000II : 393216 bytes

3.9 Printable bitmap types and sizes

The TM-H5000II/TM-U590 support the following bitmap commands. For the detail, please refer to the corresponding part of the Section 3 of “EPSON OPOS ADK MANUAL APPLICATION DEVELOPMENT GUIDE POSPrinter (TM Series)”. The allowance ranges for bitmaps are as follows.

- TM-H5000II

Bitmap command type	Allowance range		
	x (dot)	y (dot)	xy
Download bitmap	1~2040	Receipt: <= 1~384 Slip: 1~2040	Receipt: <= 98304 Slip: <=25856
Raster bitmap	1~65535	1~1023	
One-line bitmap	No setting range		

Even if meet with the limitation described above, a bitmap that extend the paper width cannot be printed.

- TM-U590

Bitmap command type	Allowance range		
	X (dot)	y (dot)	xy
Download bitmap	1~2040	1~2040	<= 25856
One-line bitmap	No setting range		

3.10 Color Bitmap Printing

The TM-H5000II/TM-U590 does not support color bitmap printing.

3.11 Maintenance Counter

The TM-H5000II/TM-U590 does not support the Maintenance Counter.

3.12 Automatic Recovery Function

The TM-H5000II/TM-U590 models feature a function for automatic recovery when the power is turned on again after an interruption of power. Recovery processing is performed automatically when the printer's power is turned on again after an interruption. The recovery processing restores the printer to the condition it was in before the power was turned off.

3.13 Output without Flow Control on the USB/Ethernet Interfaces

The TM-H5000II/TM-U590 support outputting without flow control on the USB/Ethernet interfaces. The operations differ by the firmware versions. See the corresponding part of the section 2 of this manual.

3.14 LED Blinking when BeginInsertion is executed

In the case of the TM-H5000II TM-U590 models, settings can be made in the SetupPOS utility so that the LED of the Slip starts blinking when BeginInsertion is executed. When the settings have been made in the SetupPOS utility, the LED of the slip will start blinking to indicate that the device is waiting for the paper to be inserted when the BeginInsertion method is executed.

Section 4. Warnings

This section describes precautions in use of TM-H5000II/TM-U590.

- When using TM-U590, execution of the ClaimDevice method while a slip is in place, ready to be input, may cause the BeginInsertion and EndInsertion methods to operate incorrectly. This limitation is due to the inability to correctly interpret changes in printer status.
- Because of the method of devices, TM-H5000II is unable to operate 90-degree rotated printing of Raster bitmap. To operate 90-degree rotated printing of a Bitmap, please use PrintBitmap method. Another way to operate is to execute PTR_DI_SET_BITMAP_MODE PTR_DI_BMP_NORMAL DirectIO and change the setting to use 1-line Bitmap before executing SetBitmap method.
Download bitmaps are able to operate 90-degree rotated printing regardless of the setting of PTR_DI_SET_BITMAP_MODE DirectIO.